Europäisches Patentamt | European Patent Office | Office européen des brevets

Bescheinigung | Certificate | Attestation

Die angehefteten Unterlagen stimmen mit der ursprünglich eingereichten Fassung der auf dem nächsten Blatt bezeichneten europäischen Patentanmeldung überein.

The attached documents are exact copies of the European patent application described on the following page, as originally filed.

Les documents fixés à cette attestation sont conformes à la version initialement déposée de la demande de brevet européen spécifiée à la page suivante.

Patentanmeldung Nr. | Patent application No. | Demande de brevet n°

03257637.3

Der Präsident des Europäischen Patentamts;
Im Auftrag

For the President of the European Patent Office

Le Président de l'Office européen des brevets
p.o.

R C van Dijk

Anmeldung Nr:
Application no.: 03257637.3
Demande no:

Anmeldetag:
Date of filing: 04.12.03
Date de dépôt:

Anmelder/Applicant(s)/Demandeur(s):

Koninklijke Philips Electronics N.V.
Groenewoudseweg 1
5621 BA Eindhoven
PAYS-BAS

Bezeichnung der Erfindung/Title of the invention/Titre de l'invention:
(Falls die Bezeichnung der Erfindung nicht angegeben ist, siehe Beschreibung.
If no title is shown please refer to the description.
Si aucun titre n'est indiqué se referer à la description.)

A beverage making device comprising a brewing chamber for enclosing a pad

In Anspruch genommene Priorität(en) / Priority(ies) claimed /Priorité(s) revendiquée(s)
Staat/Tag/Aktenzeichen/State/Date/File no./Pays/Date/Numéro de dépôt:

Internationale Patentklassifikation/International Patent Classification/
Classification internationale des brevets:

A47J31/00

Am Anmeldetag benannte Vertragstaaten/Contracting states designated at date of filing/Etats contractants désignées lors du dépôt:

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LU MC NL
PT RO SE SI SK TR LI

A beverage making device comprising a brewing chamber for enclosing a pad

The invention is related to a beverage making device comprising a brewing chamber for enclosing one or more pads containing a substance from which the beverage is brewed, means for supplying water to said brewing chamber, and means for leading away the brewed beverage from the brewing chamber.

Such device is described in WO-A-01/15582. The described device comprises a water reservoir and means for heating the water and pumping it to holes in the upper wall of the brewing chamber, so that the heated water can enter the brewing chamber under pressure. The brewing chamber encloses a pad, also called a pouch, made of filter material and containing a substance to be extracted, for example ground coffee. The heated water will pass through the pad, so that the coffee is extracted. During the extraction process, the brewed beverage (coffee) leaves the brewing chamber through an outflow opening in the bottom of the brewing chamber and arrives in a beverage collection chamber. The beverage collection chamber comprises an outflow tube extending outside the device, so that the brewed beverage (coffee) can be caught by one or by two cups. The portion of the device comprising the upper wall of the brewing chamber can hinge upwardly with respect to the stationary part of the brewing chamber to give access to the brewing chamber, so that a new pad can be placed for a next extraction process. In the upward position of said portion, the part of the device comprising the lower wall of the brewing chamber can be removed from the device, for example to clean the part and/or to replace the part by another similar part, whereby the brewing chamber is larger, so that two pads can be placed in it in order to brew enough beverage for two cups in stead of one cup. Also the beverage collection chamber can be removed from the device in order to clean it by rinsing or washing.

By means of the device, a beverage can be made by an extraction process, for example to produce coffee, or by a dissolving process, for example to produce a chocolate drink. In case of an extraction process, the extracted substance will remain in the pad and the pad with the extracted substance must be removed from the brewing chamber after the brewing process. In case of a dissolving process, the substance in the pad will disappear

during the brewing process, and the empty pad must be removed. The pad may contain a rigid or an elastic internal framework to maintain the outside dimensions of the pad during the dissolving process.

After the pad is removed from the brewing chamber there will remain some liquid in the brewing chamber. At least the walls, especially the lower wall of the brewing chamber, will remain wet, because not all the brewed beverage will have left the brewing chamber through the outflow opening in the lower wall.

An object of the invention is to remove residue of the brewed beverage and/or other liquids from the brewing chamber after the brewing process is completed. In other words, to obtain a cleaner brewing chamber after the pad is removed.

To accomplish that objective, the beverage making device is provided with means for squeezing the pad after the brewing process is finished and before the brewing chamber is opened to remove the pad. By squeezing the pad, the quantity of liquid in the pad will be reduced, whereby the main part of the liquid coming out of the pad during the squeezing action will be led away out of the brewing chamber through the outflow opening. After the squeezing action, the pad will act as a sponge and suck the remainder of the liquid from the brewing chamber in it before the pad is removed. Thereby, the brewing chamber will be dryer then before the squeezing action. Furthermore, the pad will contain less excess residual beverage after it is removed from the brewing chamber, so that dripping during disposal will be reduced.

In one preferred embodiment, the brewing chamber has an upper wall and a lower wall, and the pad, or pads as the case may be, can be located between said walls, whereby means are present for temporarily reducing the distance between said upper wall and said lower wall. Thereby the pad or pads will be squeezed between the two walls. To enable such reduction of said distance, there can be applied a flexible sealing ring between said upper wall and said lower wall, which ring seals the brewing chamber in both mutual positions of the walls, at the larger distance and at the smaller distance from each other.

Preferably said distance can be reduced by more than 5 %, more preferably by more the 10 %, relative to said distance during the brewing process. Or, in absolute dimensions, preferably said distance can be reduced by more then 0,5 mm, more preferably by more then 1.5 mm, relative to said distance during the brewing process.

The movement of the upper wall with respect to the lower wall of the brewing chamber can be a movement without any rotation and/or a rotating movement. In case the movement is a rotation, or comprises a rotating component, then the above reduction of said distance is the average reduction of the distance between the two walls.

In one preferred embodiment, the wall of the brewing chamber comprises a portion that can move into the brewing chamber after the brewing process has taken place. Preferably, such portion is a part of the upper wall of the brewing chamber. In one other preferred embodiment the lower wall of the brewing chamber, or a portion of said lower wall, can be lifted upwardly. The lower wall of the brewing chamber can be formed by a removable part of the device, which part can be removed to clean it or to replace it by a different part, so that two pads in stead of one pad fit in the brewing chamber. The support of that removable part can be provided with means for lifting that part upwardly, in order to squeeze the pad or the pads after the brewing process.

In one preferred embodiment, said distance between the upper wall and the lower wall increases due to fluid pressure in the brewing chamber during the brewing process. To obtain such pressure in the brewing chamber the outflow of the brewed beverage from the brewing chamber can be restricted by limiting the outflow opening. Then, the fluid pressure in the brewing chamber causes a considerable force on the walls of the brewing chamber, which force may move a part of the wall against the force of a spring. After the brewing process is finished, the pressure in the brewing chamber will fall down and subsequently said spring will push said part of the wall back in the direction of the other part of the wall of the brewing chamber, whereby the pad is squeezed. Said part and said other part of the brewing chamber can be said upper part and said lower part respectively.

In one preferred embodiment, the upper wall of the brewing chamber is part of a lid that can be lifted to open the brewing chamber, whereby said lid, together with said upper wall, can move downward before the lid is lifted upwardly to open the brewing chamber. Thereby the squeezing movement can be integrated in the movement of the lid of the device that moves in order to open the brewing chamber. Preferably, said lid can hinge around a horizontal axis.

In one preferred embodiment a latch mechanism can keep the brewing chamber closed, whereby the latch can be released by pressing the lid downward. This embodiment will be further elucidated hereinafter.

In one preferred embodiment the central portion of said upper wall is extended downwardly in order to create a dome that can press in the central part of the pad to squeeze the pad.

The invention furthermore relates to a method for making a beverage by means of a device comprising a brewing chamber for enclosing one or more pads containing a substance from which the beverage is brewed, means for supplying water to said brewing chamber and means for leading away the brewed beverage from the brewing chamber, whereby the pad is squeezed in the brewing chamber after the brewing process is finished and before the brewing chamber is opened to remove the pad.

The invention will now be explained by means of a description of an embodiment of a device for making coffee, whereby reference is made to the drawing comprising four figures, in which:

Fig. 1 is a front view of the upper part of a coffee making device;

Fig. 2 is a sectional view along the line II-II in figure 1;

Fig. 3 is a sectional view whereby the lid is closed; and

Fig. 4 is a sectional view whereby the lid is pressed down.

The figures are schematic representations, whereby only relevant portions of the device are shown. The coffee making device according to the described embodiment comprises a stationary part 1 and a hinging part 2. The stationary part 1 comprises the lower wall 8,9 of the brewing chamber and the hinging part 2 includes the upper wall 3 of the brewing chamber. The stationary part 1 furthermore comprises a water container and means for heating the water and pumping a predetermined quantity of the heated water to the brewing chamber, which portions of the device are not shown in the figures.

Figure 1 is a front view of the uppermost portion of the device for making coffee, showing the stationary part 1 and the hinging part, or lid 2 of the device. Thereby the lid 2 is represented in the open position, i.e. the position whereby the brewing chamber is accessible, for example for replacing the pad 4. Thereby the upper wall 3 of the brewing chamber is in a substantial vertical position.

Figures 2 and 3 are sectional views, whereby the lid 2 is represented in open position (figure 2) and in closed position (figure 3) respectively. Thereby lid 2 hinges around

axis 5, so that it can make a rotating movement. These two figures show the upper wall 3 of the brewing chamber, which upper wall 3 is provided with a spherical protrusion 6 in its central part, i.e. a dome in the wall 3. A flexible sealing ring 7 is attached to the hinging lid 2 around the upper wall 3.

A first removable part, forming the lower wall of the brewing chamber, is composed of a metal part 8 with attached to it a plastic element 9 having a central outflow opening 10. At its upper side, plastic element 9 is provided with a number of protrusions to support the pad 4 and to create space for leading away the brewed beverage between the protrusions. The first removable part 8,9 as shown in the figures is designed to contain one pad 4. It can be replaced by a different removable part being designed to contain two pads 4, whereby it encloses more space.

The first removable part 8,9 is provided with a handle 11 to facilitate its removal from the stationary part 1 of the device. The first removable part 8,9 can be removed to replace it or to clean it.

Below said first removable part 8,9 there is a second removable part 12, enclosing a beverage collection chamber 13 and provided with a beverage outflow tube 14, extending outside the stationary part 1 of the device. The brewed beverage, collected in collection chamber 13, leaves the device through outflow tube 14 and can be caught in a cup or the like.

When the lid 2 is closed, sealing ring 7 abuts against the upper wall 3 as well as against said part 8 of the first removable part 8,9, so that the brewing chamber is closed, except for the holes 15 in the upper wall 3 for supplying heated water to the brewing chamber, and except for the outflow opening 10. Thereby the brewing chamber may enclose a pad 4, as is shown in figure 3. Heated water is supplied through holes 15 in the upper wall 3 and passes the pad 4 to extract coffee. The brewed coffee leaves the brewing chamber through the outflow opening 10. Then the brewed coffee will be collected in the beverage collection chamber 13 and subsequently leave the device through outflow tube 14.

As is shown in figure 3, the lid 2 is kept closed by a hinging latch 16 engaging a downwardly extending edge 17 of the stationary part 1 of the device. The latch 16 can only be released by moving the lid 2 in downward direction, as is shown in figure 4. Thereby the upper wall 3 of the brewing chamber is moved towards the lower part 8,9, so that the dome 6 is pressed into the pad 4. By that movement pad 4 is squeezed whereby excess residue liquid will leave the pad 4 and will leave the brewing chamber through outflow opening 10. When

the lid 2 is subsequently opened, the pad 4 will act as a sponge resulting in suction of residue liquid that is present in the brewing chamber.

During the brewing process the lid 2 cannot be opened, because the engagement of latch 16 with edge 17 is maintained by a force caused by the fluid pressure in the brewing chamber. After the brewing process the lid 2 can be pushed downward against the force of the sealing ring 7 in order to open the lid 2. Latch 16 can be provided with a handle 18 to move it. Thereby the latch 16 can be loaded by spring means to push it in one direction, while it can be turned in the other direction by said handle 18.

The embodiment as described above is merely an example of the beverage making device; a great many other embodiments are possible.

CLAIMS:

1. A beverage making device comprising a brewing chamber for enclosing one or more pads (4) containing a substance from which the beverage is brewed, means (15) for supplying water to said brewing chamber and means (10) for leading away the brewed beverage from the brewing chamber, characterized by means for squeezing the pad (4) after the brewing process is finished and before the brewing chamber is opened to remove the pad 4.

2. A beverage making device as claimed in claim 1, whereby the brewing chamber has an upper wall (3) and a lower wall, and whereby the pad (4) or pads can be located between said walls, characterized by means for temporarily reduce the distance between said upper wall (3) and said lower wall.

3. A beverage making device as claimed in any one of the preceding claims, characterized in that the wall of the brewing chamber comprises a portion (3) that can move into the brewing chamber after the brewing process has taken place.

4. A beverage making device as claimed in claims 2 or 3, characterized in that the lower wall of the brewing chamber, or a portion of said lower wall, can be lifted upwardly.

5. A beverage making device as claimed in any one of claims 2-4, characterized in that, during the brewing process, said distance between the upper wall (3) and the lower wall increases due to fluid pressure in the brewing chamber.

6. A beverage making device as claimed in any one of the preceding claims, characterized in that the upper wall (3) of the brewing chamber is part of a lid (2) that can be lifted to open the brewing chamber, and that said lid (2), together with said upper wall (3), can move downward before the lid (2) is lifted upwardly to open the brewing chamber.

7. A beverage making device as claimed in claim 6, characterized in that said lid (2) can hinge around a horizontal axis (5), in order to open the brewing chamber.

8. A beverage making device as claimed in claim 7, characterized in that a latch mechanism (16,17,18) can keep the brewing chamber closed, which latch (16) can be released by pressing the lid (2) downwardly.

9. A beverage making device as claimed in any one of the claims 2-8, characterized in that the central portion (6) of said upper wall (3) is extended downwardly.

10. A method for making a beverage by means of a device comprising a brewing chamber for enclosing one or more pads (4) containing a substance from which the beverage is brewed, means (15) for supplying water to said brewing chamber and means (10) for leading away the brewed beverage from the brewing chamber, characterized in that the pad (4) is squeezed in the brewing chamber after the brewing process is finished and before the brewing chamber is opened to remove the pad (4).

ABSTRACT:

A beverage making device comprises a brewing chamber for enclosing one or more pads (4) containing a substance from which the beverage is brewed, means (15) for supplying water to said brewing chamber and means (10) for leading away the brewed beverage from the brewing chamber. Furthermore there are means for squeezing the pad (4) after the brewing process is finished and before the brewing chamber is opened to remove the pad 4.

Fig.4

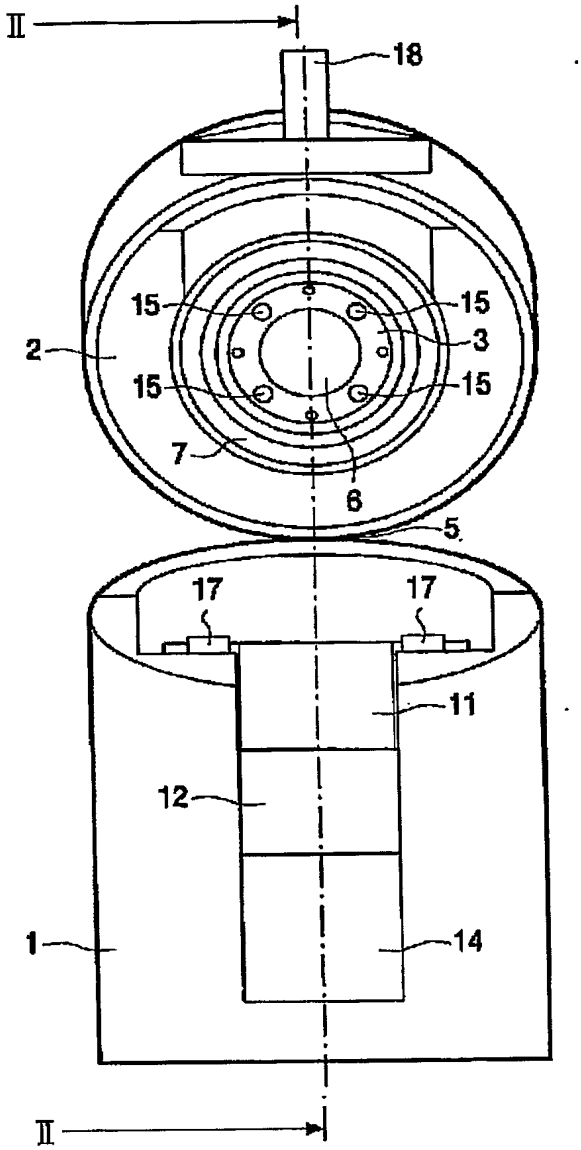

Fig.1

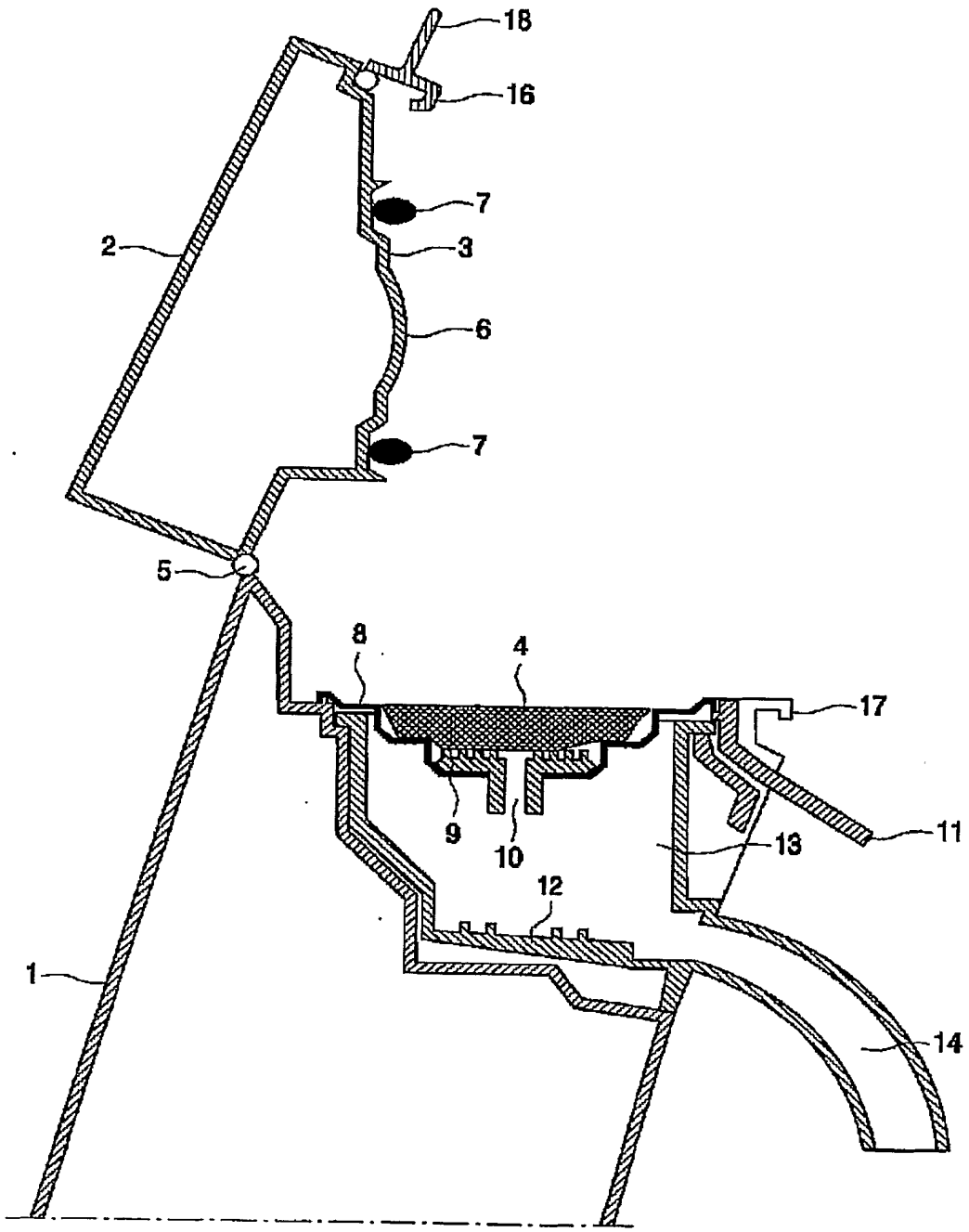

Fig.2

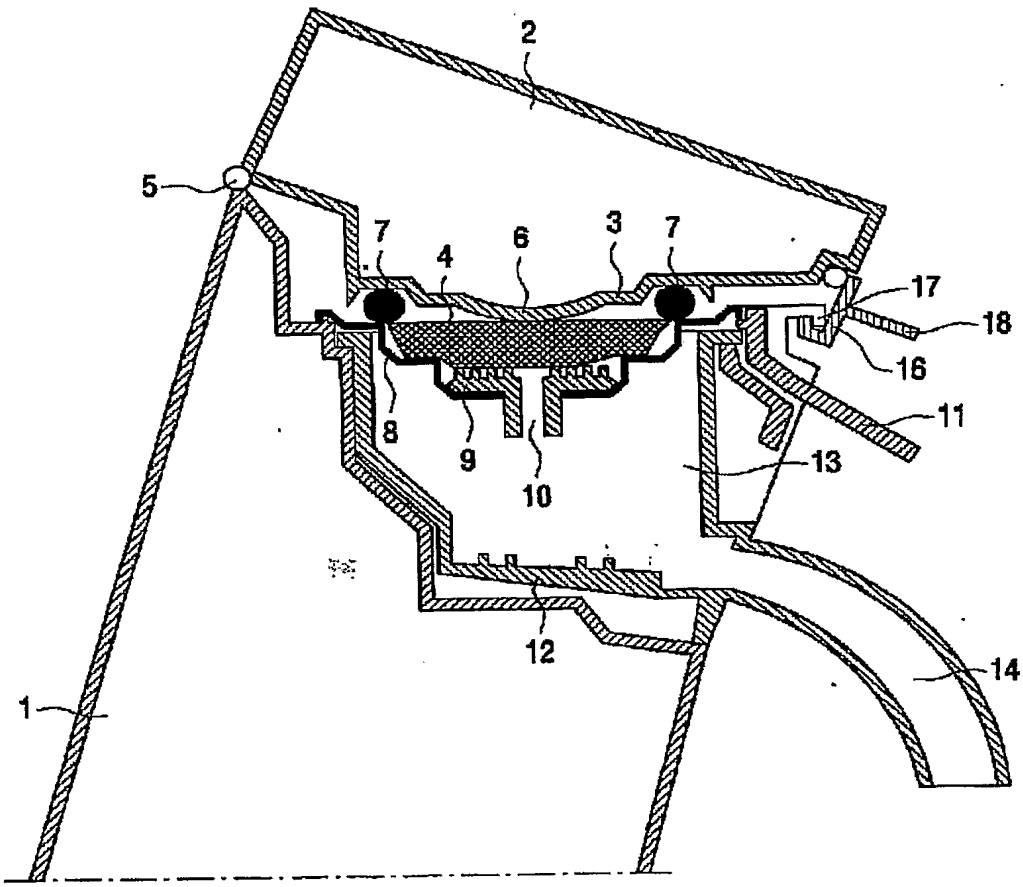

Fig.3

Fig.4